

Figure S1. GeneTrails Comprehensive Solid Tumor Panel

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|--------|---------|----------|--------|----------|--------|
| AKT1 | CDKN1B | FANCM | KIT | NTRK1 | RAD51D |
| AKT2 | CDKN2A | FGF18 | KRAS | NTRK2 | RAD52 |
| AKT3 | CHEK1 | FGF19 | MAP2K1 | NTRK3 | RAD54L |
| ALK | CHEK2 | FGF3 | MAP2K2 | PALB2 | RAF1 |
| APC | CTNNB1 | FGF4 | MAP2K4 | PDCD1LG2 | RASA1 |
| AR | DDR2 | FGFR1 | MAPK1 | PDGFRA | RB1 |
| ARAF | DDX11 | FGFR2 | MDC1 | PIK3CA | RET |
| ARID1A | EGFR | FGFR3 | MDM2 | PIK3CB | RICTOR |
| ATM | ERBB2 | FGFR4 | MDM4 | PIK3R1 | RIT1 |
| ATR | ERBB3 | GNA11 | MET | PMS1 | ROS1 |
| BAP1 | ERBB4 | GNAQ | MLH1 | PMS2 | RPTOR |
| BARD1 | ERCC2 | GNAS | MLH3 | POLE | STAG2 |
| BRAF | ERCC5 | HIST1H3B | MRE11A | PPP2R1A | STAT3 |
| BRCA1 | ESR1 | HRAS | MSH2 | PPP6C | STK11 |
| BRCA2 | FAM175A | IDH1 | MSH6 | PTCH1 | TOP1 |
| BRIP1 | FANCA | IDH2 | MTOR | PTEN | TP53 |

Table S1. List of Genomic Alterations per MM-TERT Patient

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|------------|---|
| 101 | <p>PIK3CA p.E542K (~43% mutant allele) CDKN2A gene copy number loss (~1.0 copy) ATM gene copy number loss (~0.5 copies) Chr 11 regional amplification, including CCND1, FGF19, FGF3, and FGF4 (~9-30 copies - CCND1 highest) Chr 1 regional amplification, including MDM4 and DDR2 (~6-7 copies) Chr 11 regional loss, including CHEK1 and MRE11 (~0.6-0.7 copies) Chr 8 regional loss, including FGFR1, IDO1 and IDO2 (~0.5 copies each) Chr 17 regional loss, including RAD51D (~1.0 copy)</p> |
| 104 | <p>PIK3CA p.E542K CDKN2A copy number loss Chr11 regional amplification (CCND1 and FGF19)</p> |
| 105 | <p>PIK3CA p.E542K PTEN copy number loss TP53 copy number loss CDKN2A copy number loss</p> |
| 106 | <p>PIK3CA p.C420R and copy number gain TP53 p.P250L</p> |
| 109 | <p>CDKN2A copy number loss</p> |
| 110 | <p>CHEK2 p.T367fs*15 MYC copy number gain FANCA copy number loss</p> |
| 111 | <p>PIK3CA p.H1047R TP53 p.E285 ERBB3 copy number gain FGF19 copy number gain</p> |
| 113 | <p>PTEN p.T319fs*1 and copy number loss</p> |
| 114 | <p>RAD51D p.S207L FGFR2 p.N550K PIK3CA p.E542K mTOR p.M2089I, p.I1094M and p.D907H PTEN splice site mutation and p.P248fs*2 STK11 p.S69* PIK3CA p.P104_G106delinsR CASP8 p.S403* ARID1A p.Q1424*</p> |

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|------------|---|
| 115 | PTEN gene copy number loss CCND1 gene copy number gain (8 copies) CDKN2A copy number loss (0 copies) Chr 8 regional amplification, including FGFR1 (23 copies), IDO2 (16 copies), IDO1 (8 copies) and MYC (5 copies) |
| 116 | CDKN2A copy number loss (0.8 copies) BRCA2 copy number loss (0.8 copies) |
| 117 | TP53 p.R248W |
| 201 | TP53 copy loss TMPRSS2-ERG gene fusion |
| 204 | PTEN p.C71fs*30 ATR p.I2164M |
| 207 | CTNNB1 p.T41A CDKN2A copy number loss Chr 11 regional amplification, including CCND1, FGF19 and MRE11A |
| 208 | AR gene amplification MYC copy number increase CHEK1 copy number loss ATM copy number loss Chr 11 regional gain, including CCND1, FGF19, FGF3, and FGF4 |
| 211 | PTEN p.S170fs*13 RB1 copy number loss |
| 212 | ERCC2 splice site mutation AR gene amplification ATM splice site mutation and copy loss |
| 213 | CDK12 p.R221fs*6 CDKN2A gene copy number loss (0.2 copies) ERCC5 gene copy number loss (0.2 copies) TMPRSS2-ERG gene fusion |
| 214 | ATM p.I1476fs*15 PTEN p.T277fs*21 ERCC5 p.S470* Chr 11 regional gain, including CCND1, FGF19, FGF4 and FGF3 genes (~9-15 copies) |
| 215 | RAD50 p.D1294N TP53 p.K132N AR gene amplification TMPRSS2-ERG gene fusion |

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|------------|---|
| 218 | TP53 p.R175H AR gene amplification PTEN copy number loss TMPRSS2-ERG gene fusion |
| 301 | KRAS p.G12D TP53 p.P151H |